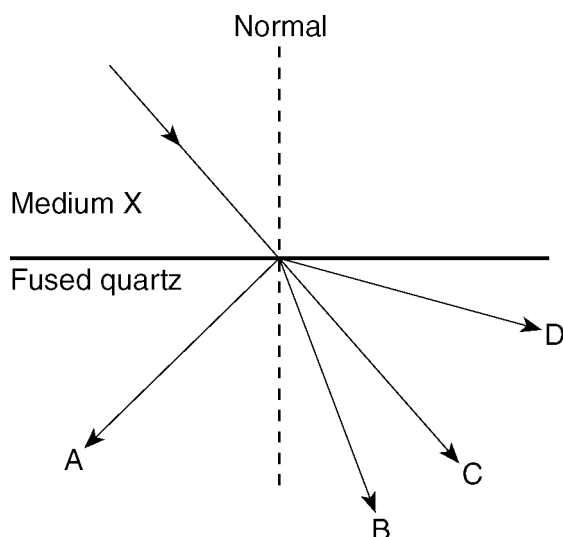


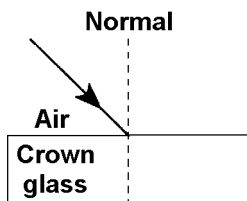
Refraction

1. The diagram below represents a ray of monochromatic light ($f = 5.09 \times 10^{14}$ Hz) passing from medium X ($n = 1.46$) into fused quartz.



Which path will the refracted ray follow in the quartz?

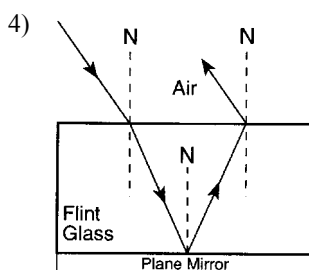
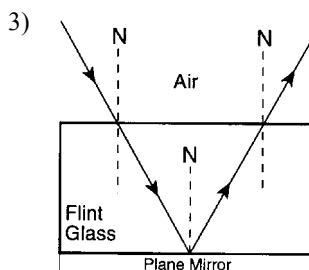
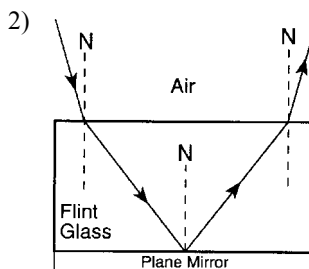
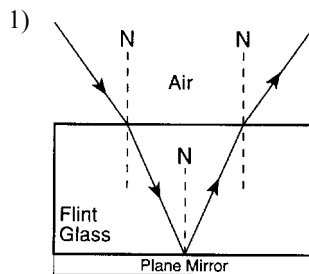
- 1) A
 - 2) B
 - 3) C
 - 4) D
2. The diagram below shows a light ray in air incident on a crown glass block.



As the light ray enters the crown glass block, it will

- 1) slow down and bend toward the normal
- 2) slow down and bend away from the normal
- 3) speed up and bend toward the normal
- 4) speed up and bend away from the normal

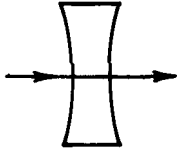
3. A ray of monochromatic light traveling in air enters a rectangular glass block obliquely and strikes a plane mirror at the bottom. Then the ray travels back through the glass and strikes the air-glass interface. Which diagram below best represents the path of this light ray? [N represents the normal to the surface.]



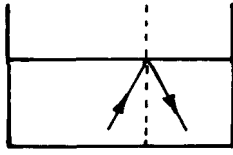
Refraction

4. Which ray diagram best illustrates refraction?

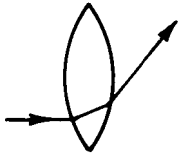
1)



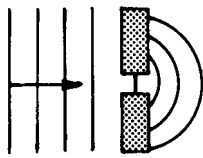
3)



2)

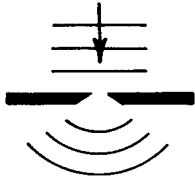


4)



5. Which diagram best illustrates wave refraction?

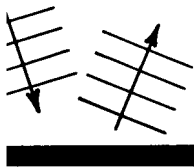
1)



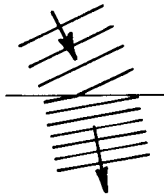
3)



2)



4)



6. As a wave enters a medium of higher refractive index, its wavelength

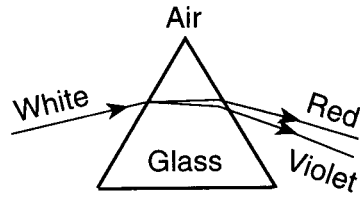
1) decreases

3) remains the same

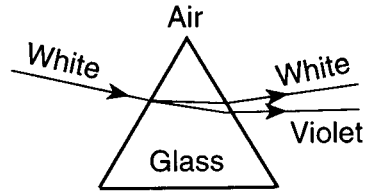
2) increases

7. Which diagram best represents the path of light rays passing through a glass prism?

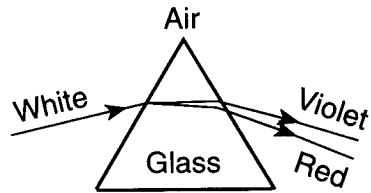
1)



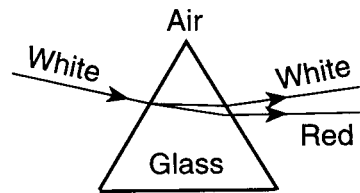
2)



3)

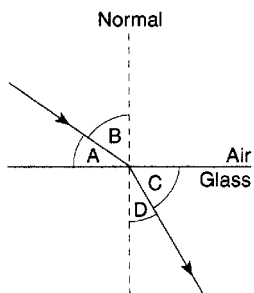


4)



Refraction

8. A light ray passes from air into glass as shown in the diagram below.



Which relationship represents the index of refraction of the glass?

- 1) $\frac{\sin A}{\sin C}$
- 2) $\frac{\sin A}{\sin D}$
- 3) $\frac{\sin B}{\sin C}$
- 4) $\frac{\sin B}{\sin D}$

9. The direction of a light ray in air will change most when the light ray obliquely strikes and then enters
 - 1) lucite
 - 2) glycerol
 - 3) alcohol
 - 4) water
 10. If a vacuum tube replaces a transistor in an electrical circuit, the energy needed to operate the circuit will
 - 1) decrease
 - 2) increase
 - 3) remain the same
 11. In which of the following materials is the speed of light the greatest?
 - 1) quartz
 - 2) alcohol
 - 3) glycerol
 - 4) lucite
 12. If the speed of light in a vacuum is c then the speed of light in a medium with an index of refraction of 2 will be
 - 1) $c/2$
 - 2) $2c$
 - 3) $c/4$
 - 4) $4c$
-

Refraction
Answer Key
[New Exam]

1. 3

2. 1

3. 1

4. 2

5. 4

6. 1

7. 1

8. 4

9. 1

10. 2

11. 2

12. 1